PATUXENT RESEARCH REFUGE

WILDLIFE REVIEW

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Except as indicated, abstracts are by Neil Hotchkiss, editor.

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WILDLIFE (GENERAL)--BIBLIOGRAPHY

DUTILLY, REV. ARTHEME. Bibliography of bibliographies on the Arctic. 47 pages, illus. The Catholic University of America, Washington 17, D. C. 1945. $1.00.

GEYER, RICHARD A. A bibliography on the Gulf of Mexico. The Texas Journal of Science 2(1): 44-92. March 1950.

This bibliography contains approximately 600 references. The author explains its scope and classifies the bulk of the material under 49 subheads under the general headings of oceanography, marine biology, geology, geophysics, meteorology, and mass mortality.

WILDLIFE (GENERAL)--COMMUNITIES & HABITATS

BLAIR, W. FRANK. The biotic provinces of Texas. The Texas Journal of Science 2(1): 93-117, illus. March 1950.

The author has the same concept of a biotic province as Dice (See Wildlife Review No. 38, page 13). He describes in more detail than did Dice the environment and vertebrate faunas (except birds) of 7 provinces, most of which extend well beyond the State.

CARR, ARCHIE F., JR. Outline for a classification of animal habitats in Honduras. Bulletin of the American Museum of Natural History 94 (art. 10): 563-594, illus. March 1950. $1.25.

"This synopsis of Honduranian land types has been drawn from four years' field notes, gathered with the view of determining and attempting to define herpetological habitats in the region." The author describes the habitats with respect to physiography, soil, climate, vegetation, and presence or absence of common animals. There are 1-3 good photographs of all but a few habitats.

ELTON, CHARLES. Population interspersion: an essay on animal community patterns. The Journal of Ecology 37(1): 1-23, illus. July 1949.

"The ultimate goal of an ecological survey I would suggest is: 'An attempt to discover the main dynamic relations between populations living on an area.' This area has usually been taken as one of the major ecosystems such as a lake or a river or a wood or a salt-marsh.....I want to suggest that the unit we should choose for detailed study could be much smaller than this, and yet should be known in such a way that it can be related to the system as a whole."

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WILDLIFE (GENERAL)--DISEASES

ANONYMOUS. Tularemia. Illinois Health Messenger 21: 94-95. December 1949.

"This is the Messenger's annual warning about tularemia. In Illinois this disease has attacked an average of 135 persons per year with about 5.6 percent resulting in death. The causative organism is Pasteurella tularensis. The incubation period is from three to four days. Symptoms are: a pimple-like elevation where the organism has entered the skin, fever, chills, weakness, and prostration. Duration of the disease in man is from three weeks to much longer periods. It is believed that one attack provides permanent immunity. The principal source is the wild rabbit. Other sources are: ground squirrels, rats, mice, muskrats, opposums, gophers, porcupines, chipmunks, beavers, grey foxes, coyotes, woodchucks, and sheep. The disease has also been reported in quail, grouse, sage hens, and pheasants. Rarely has tularemia been found in domestic animals. Human infection may occur by handling infected animals or parts thereof, or eating inadequately cooked animals; it may also occur through the bite of the wood tick, the dog tick, and the deer fly.--Walter A. Lyon." [Copied from Public Health Engineering Abstracts 30(4,5): 19.April-May 1950.]

GOLDMAN, MORRIS; JOHNSON, S. A.; and JOHNSON, SADIE A. Deep freeze preservation of stool specimens containing intestinal parasites. Journal of Parasitology 36(1): 88. February 1950.

Freezing greatly reduces the possibilities of a correct diagnosis and is therefore considered an unsatisfactory technique.--Carlton M. Herman.

HUMPHREYS, F. A. and CAMPBELL, A. G. Plague, Rocky Mountain spotted fever, and tularemia surveys in Canada. Canadian Journal of Public Health 38(3): 124-130. March 1947.

Plague infection was found in fleas taken from ground squirrels in Alberta and Saskatchewan. Spotted fever infection was found in ticks in British Columbia and Alberta. Tularemia infection was found in the western provinces in ticks, mammals, and birds.

WILDLIFE (GENERAL)--EDUCATION

RUTHERFORD, R. M. and others. It's time to take stock. The Journal of Wildlife Management 14(2): 237-242. April 1950.

The number of people being trained for wildlife work in 32 colleges and universities appears to be considerably greater than are opportunities for employment. The Employment Committee of The Wildlife Society believes that the schools that are graduating large numbers of potential workers should both expand the employment base and make determined efforts to reduce the number of graduates.

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WILDLIFE (GENERAL)--FOOD

MARTIN, ALEXANDER C. Procedures in wildlife food studies. U. S. D. I., Fish and Wildlife Service, Wildlife Leaflet 325. 10 pages, illus. December 1949.

The author discusses general principles; preliminary handling of materials; and procedures in making detailed examinations of the contents of stomachs, crops, droppings, and pellets.

WILDLIFE (GENERAL)--MANAGEMENT

ANDERSON, WALLACE L. Biology handbook, third edition (revised). 121 pages, illus. United States Department of Agriculture, Soil Conservation Service, Upper Mississippi Region, Milwaukee 3, Wis. July 1950.

"In addition to showing how to produce wildlife through good land use, this handbook attempts to show how the use of ecological principles in land management results in plant and animal relationships that contribute to the production of farm crops."

ANONYMOUS. Farm water areas. 7 pages, illus. New York State Conservation Department, Fish & Wildlife Information Bulletin No. 6. 1950.

Construction and management of ponds for fish and marshes for muskrats.

ANONYMOUS. Federal aid in wildlife restoration: annual report of the Pittman-Robertson program for the fiscal year ending June 30, 1949. 48 pages, illus. Wildlife Management Institute, Wire Bldg., Washington 5, D. C. 1949?

All of the States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands were program participants during the year. Developmental activities in all of the states included improvement of farm game, waterfowl, and forest game habitats; trapping and transplanting; predator control; and emergency winter feeding. Fact-finding projects in all but 2 states included the collecting of data for season and bag limit determinations, cooperative study programs among states, game bird stocking and releasing methods, evaluation of developmental work, and disease investigations. As in previous reports, the projects approved during the year are tabulated by states.

BRANNAN, CHARLES F. and others. Proceedings of the Inter-American Conference on Conservation of Renewable Natural Resources, Denver, Colorado, September 7-20, 1948. 782 pages, illus. U. S. Department of State, Publication 3382. $2.25.

These Proceedings are composed mainly of more than 100 papers in 6 groups, as follows: "Human Populations and Productive Capacity of the Land", "Renewable Resources and International Relations", "Land Use and the Social Sciences", "The Dynamics of Renewable Resources", "Education in Conservation Dynamics", and "Making Conservation Effective".

WILDLIFE (GENERAL)--MANAGEMENT--Continued

Chrońmy Przyrodę Ojczystą [Monthly Information on Nature Protection in Poland]. Volume 5. 1949.
Each issue has an English summary of the contents. Articles are on all phases of natural history.

DAY, ALBERT M. Introduction of exotic species. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 138-144. 1949?
Nearly all of our domestic animals and plants originated in other countries, as did a few kinds of wild animals. The author believes that others may be worth introducing. He proposes systematic exploration for them, emphasizing careful study of the animals in their native habitats before they are brought to the United States (as the U.S. Department of Agriculture has done with plants for many years).

DORER, RICHARD J. Partners--farmers and sportsmen. The Conservation Volunteer 13(75): 12-17, illus. March-April 1950.
A continuation of an account of habitat improvement in Minnesota--this part dealing with food and cover plants for unproductive knolls and eroded slopes and gullies. See Wildlife Review No. 60, page 8.

DURYEA, PERRY and others. Proceedings of the 1950 Northeastern Fish & Wildlife Conference. Articles paged separately. New York State College of Forestry, Syracuse, N. Y. 1950. $1.00 from Philip Barske.
23 articles deal with land utilization, wildlife management, research and training, legislation, tidal marsh management, stocking cottontails, pheasant research, muskrat research, deer management, and fish research and management.

FAVER, FRED and others. Report of the Arizona Game and Fish Commission for the biennium July 1, 1947--June 30, 1949. 44 pages, illus. 1949?

FEAST, CLELAND N. Co-ordination of agriculture and wildlife management practices. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 111-117. 1949?
"Coordination of agricultural and game management practices is not as urgent, or as far advanced, in the West as in the East and Midwest because of (1) the relatively small acreage cultivated land and proportionately small importance of farm game; and (2) the abundance of big game on vast areas of unposted public hunting land." City hunters do considerable damage to property and crops. Poison used in predator control is a serious problem. Daytime mowing of alfalfa is an important source of pheasant nest mortality. Farm game damages crops less than do waterfowl or big game. The program of the Soil Conservation Service is regarded as an asset by most of the western game departments.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

GLAZENER, W. C. Wildlife transplanting for 1948-49. Texas Game and Fish 8(7): 18-19, illus. June 1950.
Tables and a map of Texas show where and how many antelope, beaver, deer, muskrats, and wild turkeys were transplanted.

HALLER, FRANK D. Wildlife and the farmer. Outdoor Indiana 17(7): 10-11, illus. July 1950.
The author reports on a study of about 2000 acres of intensively cultivated Indiana farm land. Lack of cover and destruction of nests by plowing limited the cottontail population. Lack of cover kept the bobwhite population low in winter. Bigger game populations depend on the production of more cover by cooperating farmers and hunters.

HILL, RALPH R. Forest wildlife management in the Rocky Mountain region. Journal of Forestry 48(6): 419-422. June 1950.
The author believes that ".....we need: (1) To distinguish between what is sustained yield and what is exploitation; (2) to recognize that multiple use will seldom yield the maximum of any single service--rather a maximum of total values; (3) to operate with a reasonable margin of safety anticipating recurrent catastrophes of weather; (4) to appreciate that management which diverges least from the natural is most likely to succeed ultimately and at the least expense; (5) to recognize that land has certain capabilities and limitations; and, (6) to recognize that human problems are inseparable from land and water, and from plants and animals."

LEEDY, DANIEL L. Ohio's status as a game and fur producing state. The Ohio Journal of Science 50(2): 88-94. March 1950.
Ohio is 35th in size among the states; but in only 3 or 4 is there greater hunting pressure. In 1946 its combined kill of cottontail, fox squirrel, gray squirrel, and pheasant was greater than in any other state. It is among the top 6 states in fur production. In contrast, its kill of waterfowl and big game is small.

LEONARD, ROSS. Wildlife vs. stock. The thirty-seventh convention of the International Association of Game, Fish and Conservation Commissioners, September 8, 9 and 10, 1947. Pages 87-92. 1948?
"Good game and good livestock both stem from good land management. Good land management means the maximum protection to all the land resources." "Under private ownership, the landowners' natural desire for profit and economic stability would obscure the question of the relative suitability of his tract of land for livestock or for the public values of watershed protection, wildlife, or recreation."

WILDLIFE (GENERAL)--MANAGEMENT--Continued

LEONARD, ROSS and others. Proceedings twenty-eighth annual conference Western Association of State Game and Fish Commissioners. 190 pages, illus. 1948.
Approximately 30 papers on big game, waterfowl, upland game birds, and other subjects.

RIDER, H. A. Co-ordination of agriculture and wildlife management practices. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 117-122. 1949?
In Ohio, recent changes in cropping and harvesting practices have reduced the pheasant population. Destruction of hedgerows, increasing use of herbicides, and grazing of woodlots are also hard on farm wildlife. "It is our sincere belief that any wildlife program must be compatible with proper land use, work conveniently into soil conservation and above all be acceptable to agriculture if it is to succeed and possess the continuity to make it worthwhile."

SHELFORD, V. E. Fencing natural areas. Ecology 31(2): 288-290, illus. April 1950.
Description of a low-cost fence that permits free movement of birds and mammals but discourages man.

SWIFT, ERNEST F. Report to the people of Wisconsin on the State's renewable natural resources and 1949 conservation effort. Wisconsin Conservation Bulletin 15(2): 3-78, illus. February 1950.
This is a report on (1) soils, (2) waters, (3) forests and land, (4) protection, (5) fish, wildlife and recreation, (6) education, and the (7) clerical and financial conditions of the Conservation Department. It involves about 40 agencies. There is great need for coordination of information and effort among them.

WHEELER, R. A. Fish and wildlife in the federal program of navigation and flood control. The thirty-seventh convention of the International Association of Game, Fish and Conservation Commissioners, September 8, 9 and 10, 1947. Pages 162-169. 1948?
The Corps of Engineers plans to obtain maximum benefits for fish and wildlife consistent with its primary responsibility for river and harbor improvements and flood control.

WOOTEN, H. H. and PURCELL, MARGARET R. Farm land development: present and future, by clearing, drainage, and irrigation. 67 pages, illus. U. S. D. A., Circular No. 825. October 1949. 20¢ from Government Printing Office.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

WRIGHT, BRUCE S. and others. Wildlife. The Forestry Chronicle, Special supplement. Serial No. 98. Pages 64-75. March 1950.

This report of the recently established standing committee on wildlife of The Canadian Society of Forest Engineers gives examples of earlier wildlife management by foresters in Newfoundland (moose) and in New Brunswick (beaver); and outlines current research and management projects of the Dominion Wildlife Service, Provincial governments, and other organizations throughout Canada. Most of the experienced men are in administrative work, while the field of research is badly understaffed.

WILDLIFE (GENERAL)--POPULATIONS

CLARK, ANDREW HILL. The invasion of New Zealand by people, plants and animals; the South Island. 465 pages, illus. Rutgers University Press, New Brunswick, N. J. 1949. $6.00.

"This book is a report on a revolutionary change in the character of a region, which occurred in a period of less than two centuries. One of the most important factors in the change was the invasion of the area by armies of plants and animals, which, with the help of man, mingled with or displaced the native flora and fauna." In 5 sections, comprising 15 chapters, the author describes the primitive habitat (the land itself) and the effects of the changing population, sheep, cattle, the rabbit, grazing and browsing game animals, wheat, forage crops (brassicas, grasses, clovers), exotic trees and shrubs (conifers, gorse, etc.). and of many other animals and plants. The whole situation is vividly summarized in a 7-page "Conclusion." There are many explanatory notes and references to many publications.

SIIVONEN, LAURI. Decline in numerous mammal and bird populations in north-western Europe during the 1940s. Papers on Game-Research 2. 26 pages, illus. 1948.

In species of more southern distribution this was due to colder winters and more snow than before. In species of more northern distribution it was due to a deviation in the short-term fluctuations in numbers.

SIIVONEN, LAURI. Structure of short-cyclic fluctuations in numbers of mammals and birds in the northern parts of the northern hemisphere. Papers on Game-Research 1. 166 pages, illus. 1948.

The author discusses fluctuations in blackgame and capercaillie, hare and rabbit, Lagopus, arctic geese, lemming, vole, waxwing, nutcracker, European partridge, ruffed grouse, red and arctic foxes, lynx, snowy and horned owls, hawks, and Scotch pine. He concludes that "The short-cyclic fluctuations in numbers in the northern parts of the northern hemisphere seem, at least in most cases, to have joined most clearly the theoretic 3 1/3-year periodicity."; that "The fluctuations in numbers seem to have occurred at somewhat different times for different species of animals."; and that "....the fluctuations in numbers are above all phenomena of the northern latitudes."

WILDLIFE (GENERAL)--RESEARCH

ADAMS, LOWELL. A punch-card system suitable for use with small samples in wildlife management and research. 7 pages, illus. U. S. D. I., Fish and Wildlife Service, Special Scientific Report: Wildlife No. 3. April 1950.

DEMMON, E. L. Lake States Forest Experiment Station annual report for 1949. 32 pages, illus. 1950?
A section on Forest Wildlife Research describes an ecological study of moose on Isle Royale, a survey of winter deer browse on the Superior National Forest, and the effect on germination of passage of seeds through the digestive tracts of birds or mammals. There is a list of articles published in 1949.

SIIVONEN, LAURI. Report of the activity of the Game-Research Institute of the Finnish Foundation for Game Preservation during the 5-year period 9. 11. 1943-9. 11. 1948. Suomen Riista. Part 3. Pages 32-33. 1948.
This is a summary in English of a 24-page article in Finnish. The Institute's work is in 7 different departments: (1) material gathering, (2) population dynamics, (3) habitat, (4) game diseases, (5) improving quality of game, (6) game of the lakes, (7) sea-fowl.

TEBBE, CHAS. L. Thirty-eighth annual report for the calendar year 1948. 75 pages. Northern Rocky Mountain Forest & Range Experiment Station, Missoula, Montana. 1949?
The report of the Division of Wildlife Research on page 64 describes research on the effects of deer browsing on ponderosa pine reproduction, a publication on 1947 studies of DDT, and studies of small mammals in relation to reforestation. There is a list of publications.

MAMMALS--COMMUNITIES & HABITATS

CRAWFORD, BILL T. Some specific relationships between soils and wildlife. The Journal of Wildlife Management 14(2): 115-123, illus. April 1950.
In Missouri in the early 1940's many raccoons, muskrats, opossums, and rabbits were taken in many localities. The heavier animals were from areas with more fertile soils.

WEBB, WILLIAM L. Biogeographic regions of Texas and Oklahoma. Ecology 31(3): 426-433, illus. July 1950.
Using with mammals a quantitative method ".....based on the degree of similarity of species composition at sample points", the author delimits in these 2 states ".....four regions with relatively stable species composition, with an extensive area of transition or ecotone between. These are: (a) eastern forest community, (b) High Plains community, (c) Rio Grande community and (d) Trans-Pecos community." The area of transition is greater than the total area of the 4 communities.

MAMMALS--DISEASES

EMMONS, C. W. Histoplasmosis in animals. Transactions of the New York Academy of Sciences, Series II 2(7): 248-254. May 1949.

This fungus disease, common to man and many species of mammals, is being extensively studied in wild animals as the only practicable method now available for determining conclusively the geographical distribution of histoplasmosis. It has been recognized in a number of areas in the United States and has thus far been observed in the dog, brown rat, roof rat, domestic cat, and spotted skunk.--Carlton M. Herman.

WOODHEAD, ARTHUR E. Life history cycle of the giant kidney worm, Dioctophyma renale (Nematoda), of man and many other mammals. Transactions of the American Microscopical Society 69(1): 21-46. January 1950.

This paper is the result of nearly 20 years of study. It was first initiated as part of a study of the parasite as it occurred in mink in Michigan. The eggs of the parasitic worms are hatched in the gut of brachiobdellids and the larvae penetrate into the body tissues. This first intermediate host is then eaten by fish (bullheads in this study) where further development of the D. renale larvae takes place. The fish is then eaten by a mammal in which the adult stages of the worm occur. In the mammal the worms occur in the kidney or the body cavity. Adult worms may vary considerably in size: 3 cm. long from body cavity of ferret, 32 cm. long from kidney of mink, 100 cm. long from body cavity of dog. After 1-3 years the adult worm dies and degenerates and the infected kidney shrivels and dries up.--Carlton M. Herman.

MAMMALS--FAUNAS & MANUALS

BLACKMORE, MICHAEL. Mammals in Britain. 128 pages, illus. Collins, Fourteen St. James's Place, London. 1948. 15 shillings.

"The main purpose of this book is to provide for the layman a simple introduction to the study of British mammals, illustrated by a representative selection of really good photographs." The brief text is packed with interesting information; the 77 photos are large and clear and many of them are beautiful. Accounts that may be particularly interesting to North Americans are those of shrews, bats, brown hare, voles, muskrat, gray squirrel, fox, and red deer.

GRIMM, WILLIAM C. and ROBERTS, HARVEY A. Mammal survey of southwestern Pennsylvania. 99 pages, illus. Pennsylvania Game Commission, Harrisburg. 1950.

A detailed description of the area (physiography, climate, native vegetation, etc.) precedes accounts of the ecological distribution of the mammals, methods of study, the kinds of mammals found in the area, and vanished species. The authors recommend control of deer, removal of protection of opossum, removal of bounties on predators, and a concurrent season for trapping mink and muskrat, beginning November 15.

MAMMALS--FAUNAS & MANUALS--Continued

GUNDERSON, HARVEY L. Mammals of Cedar Creek Forest, Anoka County, Minnesota. The Flicker 21(4): 96-100. December 1949.

A brief description of behavior, distribution, and abundance is followed by a list of 28 species.

MAMMALS--MANAGEMENT
(See MAMMALS--FAUNAS & MANUALS, Grimm & Roberts)

MAMMALS--POPULATIONS

ANDERSON, R. M. A survey of Canadian mammals of the north. The Province of Quebec Association for the Protection of Fish and Game, Inc. 89th Annual Report. Pages 9-17. April 1948.

Detailed information on the history and present status of black, big brown, grizzly and polar bears, bison, caribou, moose, musk-ox, walrus, seals, and sea-lions.

MAMMALS--BIG GAME (GENERAL)

MACE, R. U. Harvesting Oregon's big game crops. Oregon State Game Commission Bulletin 5(6): 1,6-8, illus. June 1950.

"In order to guide the establishment of regulations for the harvests of big game crops, it is necessary to secure reliable information on the condition of the various herds and factors affecting production, the magnitude of annual harvest by hunters, and the problem of balances between big game, food supplies, and competing interests." "In the last fifty years, the history of big game in Oregon has progressed from depletion, through restoration, and finally to over-abundance on some ranges."

MAMMALS--BIG GAME (DEER)

ANONYMOUS. The game range problem when winter comes. Colorado Conservation Comments 10(13): 10-13, 16-18, illus. March 1950.

The State's policy in the management of deer and elk is to balance the numbers of each species with the supply of natural food on the winter range. This article reviews the history of greatly increased populations that have resulted in large winter losses. In no state is winter feeding now considered desirable.

ARBOGAST, CARL, JR. and HEINSELMAN, MIRON L. Damage to natural reproduction by deer browsing. 1 page. Lake States Forest Experiment Station, Technical Notes No. 332. April 1950.

Browse damage was very heavy in swamp and upland forest types in the Argonne Experimental Forest, Forest Co., Wisconsin in the winters of 1948 and 1949.

MAMMALS--BIG GAME (DEER)--Continued

ARMSTRONG, RUTH ALISON. Fetal development of the northern white-tailed deer (Odocoileus virginianus borealis Miller). The American Midland Naturalist 43(3): 650-666, illus. May 1950.

From a study of 76 New York State fetuses the author presents a detailed key (with drawings and photos) for the determination of 16 different ages of the fetus from its beginning at about the 37th day of the gestation period to the end of the approximately 200-day period.

BARTLETT, ILO HENRY. Our deer problem and its effect on the management of food and cover for wildlife. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 204-214, illus. 1949?

In the Upper Peninsula of Michigan there is a small deer herd with light overpopulations and minor starvation in a few areas. In the northern part of the Lower Peninsula--Michigan's best deer country--there are large overpopulations, a large and rapidly spreading critical starvation area, and heavy damage to farm crops and orchards. In the southern part of the Lower Peninsula there are only a few deer; but locally there is serious damage to crops.

COX, B. F. More about deer disease. Wildlife in North Carolina 14(7): 19-20, illus. July 1950.

The possibility that "black-tongue" in eastern deer is tick-transmitted needs investigation.

CRAMER, WILBUR M. 104 deer a minute. Pennsylvania Game News 21(3): 3, 26-27, illus. June 1950.

In this account of the 1949 deer season in Pennsylvania the author discusses some of the problems that arise where so many people and so many deer live in the same area.

DAHLBERG, B. L. The Wisconsin deer problem and the 1949 hunting season. Wisconsin Conservation Bulletin 15(4): 3-7, illus. April 1950.

Probably 160,000 deer were bagged as legal game--more than in any previous season in Wisconsin's history. However, the herd was reduced on only a small portion of the range.

DAHLBERG, B. L. and GUETTINGER, R. C. A critical review of Wisconsin's deer problem. Wisconsin Conservation Bulletin 14(11): 6-9. November 1949.

In 1949 Wisconsin had an antlerless deer season. This is the first step in a long-delayed management policy for Wisconsin's deer herd.

MAMMALS--BIG GAME (DEER)--Continued

DAHLBERG, B. L. and HALE, JAMES B. Preliminary report on the 1949 deer season. Wisconsin Conservation Bulletin 15(1): 7-8. January 1950.
"Forty-seven counties were open for the shooting of antlerless deer, ..." "Hunter success was high, the illegal kill was low, hunter fatalities dropped, and there are many deer left."

DASMANN, WILLIAM P. Basic deer management (a story with pictures). California Fish and Game 36(3): 251-284, illus. July 1950.
34 photos and accompanying brief descriptions show how winter deer ranges limit the number of migratory deer in California; how certain plants limit the number of resident deer in coastal California; and how "The deer manager works to keep the herd of breeding deer in balance with its food supply."

FERREL, CAROL M. and LEACH, HOWARD R. Food habits of a California deer herd. California Fish and Game 36(3): 235-240, illus. July 1950.
This report summarizes the contents of 24 stomachs taken in winter and 16 taken in summer, 1947-49, from the Jawbone herd in Tuolumne County. Ceanothus, oaks, Chamaebatia, and manzanita were the most important foods.

GUNVALSON, VERNON E. What about the deer season? The Conservation Volunteer 13(76): 1-6. May-June 1950.
Following a discussion of the effects in Minnesota of hunting through successive seasons, predation, disease, and winter starvation, the author concludes that "Although we still have areas of good deer winter range, it will be far better for us to put up with a lower hunting success and to maintain a healthy range and deer herd than risk the troubles which both Michigan and Wisconsin are pointing out to us by experience."

JULANDER, ODELL and ROBINETTE, W. LESLIE. Deer and cattle range relationships on Oak Creek range in Utah. Journal of Forestry 48(6): 410-415, illus. June 1950.
Deer and cattle use much the same range. Overstocking has led to a big reduction of cattle. Deer are still overstocked on summer range. Deer feed very little on grass except in the spring. Cattle take considerable browse.

MAMMALS--BIG GAME (DEER)--Continued

LEFFLER, ROSS L. Our deer problem and its effect on the management of food and cover for wildlife. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 175-179. 1949?

Pennsylvania has an abnormally large deer population, with deer occurring in every county of the State. There must be a maximum harvest if deer are to have browse food, if forests are to reproduce, and if other forest-game species are to survive. Efforts to provide food and cover for other species have been largely nullified by deer. "We are faced with not harvesting but controlling them with the same determination with which we attempt to control any undesirable species. For the good of our other game species, for the good of our forests, and for the good of the deer themselves this must be accomplished."

MAPES, CORTLAND R. and BAKER, DONALD W. The white-tailed deer, a new host of Dicrocoelium dendriticum (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae). The Cornell Veterinarian 40 (2): 211-212. April 1950.

The parasites were obtained from the livers of 3 deer in the eastern Finger Lakes region of New York State. Although this common European liver fluke has been known to occur in the cattle of the area for nearly 10 years and was recently reported from sheep, this is the first report from a native host in this country.--Carlton M. Herman.

OLSEN, O. WILFORD. White-tailed deer as a reservoir host of the large American liver fluke. Veterinary Medicine 44(1): 26-30, illus. January 1949.

RAUSCH, ROBERT. Observations on histopathological changes associated with starvation in Wisconsin deer. The Journal of Wildlife Management 14(2): 156-161, illus. April 1950.

A study of 5 deer. Histological findings lead the author to conclude that winter deer losses in Wisconsin are caused directly by starvation uncomplicated by any infection.--Carlton M. Herman.

RUFF, FRED J. What is "Black Tongue" among deer? Wildlife in North Carolina 14(6): 16-19, illus. June 1950.

This is a review of the extensive deer losses that have occurred at various periods during the last 15 or 20 years. Hemorrhagic septicemia seems to be the most likely diagnosis of most of the losses. An attempt has been made to bring together all the known facts concerning the various outbreaks and to summarize these from the standpoint of ecological conditions and pathological findings.--Carlton M. Herman.

MAMMALS--BIG GAME (DEER)--Continued

SMITH, ARTHUR D. Feeding deer on browse species during winter. Journal of Range Management 3(2): 130-132. April 1950.

Two mature captive mule deer were fed a total of 17 species of forage plants during the winter of 1948. Mountain mahogany was eaten much more than any other species.

SMITH, ARTHUR D. Mule deer vs. livestock. Utah Fish and Game Bulletin 7(12): 1,4-5,7, illus. March 1950.

"Winter deer ranges throughout Utah, and much of the intermountain country, also serve as spring and early summer and fall grazing areas for livestock. Much of this land is privately owned and the owners have resented the presence of deer during the winter and early spring period, before livestock were permitted to graze the area." Experiments on an area near Logan, Utah showed that deer tended to kill out sagebrush and to favor much better growth of perennial forbs and grasses than did cattle.

SWIFT, ERNEST. Deer damage to forest reproduction survey. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 181-203, illus. 1949? (Reprinted as Wisconsin Conservation Department Publication No. 347)

The author presents the results of an 18-months survey that was conducted by the Wisconsin Conservation Department and the United States Forest Service. Charts show the degree of browsing of each of 14 commercially important timber species. Approximately 1 out of every 5 acres of forest reproduction in the State is being crippled by deer each year.--M. A. Slattery.

MAMMALS--BIG GAME (ELK, MOOSE, ETC.)
(See also MAMMALS--BIG GAME (DEER), Anonymous)

ALLRED, WARREN J. Elk tagging in Wyoming. Wyoming Wild Life 14(1): 4-9,35-38, illus. February 1950.

Since 1941 elk have been tagged on the feed grounds and the tags recovered during hunting seasons. The resulting information on seasonal migrations has been used in management.

ALLRED, WARREN J. Re-establishment of seasonal elk migrations through transplanting. Wyoming Wild Life 14(2): 18-19,32-38, illus. March 1950.

Transplantations begun in 1944 have resulted in increasing numbers each fall moving southward from the mountains to the great semidesert area in Sublette, Fremont, and Sweetwater Counties, Wyoming.

MAMMALS--BIG GAME (ELK, MOOSE, ETC.)--Continued

BLUNT, FLOYD M. Migration study of the Jackson Hole elk herd. Wyoming Wild Life 14(2): 25-32, illus. March 1950.

CROSS, RICHARD H., JR. Virginia's elk herds. Virginia Wildlife 11(6): 10-11,22, illus. June 1950.
Elk were reintroduced into Virginia in 1917. They now occur in Botetourt, Giles, and Bland Counties. Their management is complicated by a small range and adjacent farms.

GRASSE, JAMES E. Trapping the moose. Wyoming Wild Life 14(5): 12-18, 36-37, illus. June 1950.
Trapping and transplanting experiences in Wyoming from 1934 to 1950.

GREEN, HUBERT U. The productivity and sex survival of elk, Banff National Park, Alberta. The Canadian Field-Naturalist 64(1): 40-42. January-February 1950.
"Due to the overutilization by elk of the Bow River range of the Banff National Park, Alberta, it was decided by the National Park Service in 1944 to remove by nonselective slaughter a predetermined number each year until range-carrying capacity was in balance with population." 1130 were killed between 1944 and 1948; and many of these animals were autopsied. The author describes the habitat, mortality factors, and methods of study. There is high productivity, a heavy calf loss between conception and the age of about 6 months, and a heavy mortality during the first winter of life.

LANTIS, MARGARET. The reindeer industry in Alaska. Arctic 3(1): 27-44, illus. April 1950.
An account of the physical, economic, and political conditions through which this industry has struggled since 1892; with recommendations for management during the next 15 or 20 years.

MAMMALS--BIG GAME (ANTELOPE & BIGHORN)

BLUNT, FLOYD M. Wyoming's 1950 antelope census. Wyoming Wild Life 14(4): 8-13,36-37, illus. May 1950.
More than 75,000 antelope were counted from the air between January 26 and March 8. There is overpopulation in the Northeast, underpopulation in the Red Desert. The total population should not be increased.

MAMMALS--BIG GAME (ANTELOPE & BIGHORN)--Continued

BUECHNER, HELMUT K. Life history, ecology, and range use of the pronghorn antelope in trans-Pecos Texas. The American Midland Naturalist 43(2): 257-354, illus. March 1950.

The author studied antelope in this region between June 1946 and September 1947. The main objective ".....was to determine antelope food habits and antelope-livestock competition." The population comprised approximately 7000 animals. Recent increases have been associated with ".....abundant rainfall during the prebreeding season, and with predator control." "The most important limiting factor to antelope increases and distribution at the present time is intense food competition from domestic sheep." In contrast, antelope do well on cattle ranges; and ".....the income from antelope hunting is about twice that received from the cattle which could be grazed in place of the antelope."

CHATTIN, JOHN E. and LASSEN, ROBERT. California antelope reproductive potentials. California Fish and Game 36(3): 328-329. July 1950.

"Information gathered as a result of recent antelope trapping and transplanting operations during December 1949 and January 1950 shows that the reproductive potential of antelope in Lassen County, California, may be considerably higher than field surveys would indicate." Of 20 females examined, 18 were pregnant. 17 of the 18 pregnant females contained twin embryos.

COUEY, FAYE M. Rocky Mountain bighorn sheep of Montana. 90 pages, illus. Montana Fish and Game Commission Bulletin No.2. 1950.

Most of this bulletin deals with the Sun River bighorn herd: its environment, distribution, numbers, sex ratio, ewe-lamb ratio, life habits, forage utilization, range use, parasites and disease, predator relationships, and trapping and transplanting. 15 Montana herds have an estimated population of 1200 bighorns. Recommendations for the State include (1) establishing a research ranch in the Sun River area, (2) putting out salt containing phenothiazine for combatting intestinal nematodes, (3) taking by hunting about 10 rams each year from the Sun River area, (4) establishing a herd in the Missouri breaks north of Jordan, another in the badlands southeast of Glendive, (5) controlling predators in all areas by state trappers, and (6) placing a large illustrated sign at the entrance of Sun River Canyon during the hunting season. The bulletin includes a report by KENNETH THOMPSON on "Historical Range and Notes on Audubon Mountain Sheep."

MAMMALS--BIG GAME (ANTELOPE & BIGHORN)--Continued

JONES, FRED L. A survey of the Sierra Nevada bighorn. Sierra Club Bulletin 35(6): 29-76, illus. June 1950.

In 1948 the author made the investigation upon which this report is based. He writes of the taxonomy of the 3 subspecies of bighorn in California; interchange of Sierra and Nelson sheep; present range and numbers of Sierra sheep; the terrain, climate, and vegetation of their range; seasonal ranges; and life history (physical characteristics, senses, sign, bands, lambs, behavior, food, mating season, decimating factors, and management). "To sum up, the Sierra bighorn is part of the arctic-alpine climax biota and management should consist simply of preserving that biota."

MAMMALS--FURBEARERS (GENERAL)

DUSTMAN, EUGENE H. Ohio's 1948-1949 fur crop. The Ohio Conservation Bulletin 14(7): 4-5, illus. July 1950.

662 Ohio fur dealers bought more than 600,000 raw furs for which they paid more than 1 million dollars. Three-fourths of the take and three-fourths of the value were muskrats. The take in 1947-48 was about the same, but it was worth nearly half as much again.

PETRIDES, GEORGE A. The determination of sex and age ratios in fur animals. The American Midland Naturalist 43(2): 355-382, illus. March 1950.

The author describes the determination of sex and age in pelts and carcasses for the muskrat, raccoon, mink, red fox, gray fox, striped skunk, long-tailed weasel, and badger. The criterion of sex in the muskrat is the nipple sites; criteria of age are the condition of the internal and external sex organs, and pelt primeness patterns. In the other species the criterion of sex is the presence or absence of the penis scar; the criteria of age are the developement of teats and bacula.

MAMMALS--FURBEARERS (BEAVER)

DENMARK, D. E. James Bay beaver conservation. The Beaver, Outfit 279: 38-43, illus. September 1948.

"James Bay is now the scene of the greatest beaver conservation effort in history." Almost the entire coast is taken up by beaver preserves, some of which extend inland as much as 300 miles. These preserves are the result of the successful operation of the Hudson's Bay Company's 7000-square-mile Rupert's House preserve that started in 1930. The preserves are operated jointly by the Dominion's Indian Affairs Branch and the Hudson's Bay Company. The author gives an interesting account of their management and of how important beaver are in the life of the Indians.

MAMMALS--FURBEARERS (BEAVER)--Continued

GRASSE, JAMES E. and PUTNAM, EUVERN F. Beaver management and ecology in Wyoming. 52 pages, illus. Wyoming Game and Fish Commission, Bulletin No. 6. 1950. 25¢.
This bulletin has chapters on beaver history, physical characteristics, life history, ecology and management, trapping and transplanting, and post-planting studies. It has many large, clear photos.

HETER, ELMO W. Transplanting beavers by airplane and parachute. The Journal of Wildlife Management 14(2): 143-147, illus. April 1950.
This method has proven effective and economical in Idaho, after years of difficulties in transporting beaver by cars and horses.

KRUGER, Paul. The habits of the beaver and its farming. Suomen Riista. Part 3. Pages 65-66. 1948.
This is a summary in English of a 9-page article in Finnish. Observations were made on free and caged animals.

PATTERSON, DONALD. Beaver-trout relationships. Wisconsin Conservation Bulletin 15(3): 9-11, illus. March 1950.
Some of the effects of beaver ponds on trout water may be beneficial, some harmful, depending on the type of stream, the number of dams, and other factors.

SANDERSON, GLEN C. Iowa's 1949 beaver season. Iowa Conservationist 9(3): 17,23-24, illus. March 1950.
In December 1949, Iowa had a 7-day season in 33 counties--the first in many decades. More than 2100 pelts have been reported by half of the State's fur buyers. 268 were reported from Woodbury County. Trappers were paid an average of $10.50. The beaver's future in Iowa is uncertain.

WILDE, S. A.; YOUNGBERG, C. T.: and HOVIND, J. H. Changes in composition of ground water, soil fertility, and forest growth produced by the construction and removal of beaver dams. The Journal of Wildlife Management 14(2): 123-128, illus. April 1950.
A study in northeastern Wisconsin in 1947 and 1948 indicates that drainage of beaver flowages may do more damage than did the original flooding through (1) decreasing the fertility of the soil, (2) increasing the fire hazard, (3) destroying fur animal habitat.

MAMMALS--FURBEARERS (MUSKRAT)

BEER, JAMES R. The reproductive cycle of the muskrat in Wisconsin. The Journal of Wildlife Management 14(2): 151-156, illus. April 1950.

MAMMALS--FURBEARERS (MUSKRAT)--Continued

CHANDLER, ASA C. Trichostrongylus calcaratus in muskrat. Journal of Parasitology 36(1): 87. February 1950.
From Pennsylvania.--Carlton M. Herman.

GASHWILER, JAY S. A study of the reproductive capacity of Maine muskrats. Journal of Mammalogy 31(2): 180-185. May 1950.
"A study was made of muskrat uteri and litters from 1945 to 1948 in central and eastern Maine." "The average size of 62 litters, considered to be complete, was 5.4 young each." "The number of litters per female per year was found to be two, with possibly a few instances of three."

O'NEIL, TED. The muskrat in the Louisiana coastal marshes. 152 pages, illus. Louisiana Department of Wild Life and Fisheries, New Orleans, La. 1949. $3.00.
This book summarizes studies made from 1940 to 1945. It includes thorough descriptions of (1) the different kinds of marshes and of the changes in which each is involved, (2) the natural history of the muskrat, (3) muskrat management, and (4) the muskrat industry. The text is packed with information. Photos, a large colored map of marsh types, other maps, a group of questions and answers, and a glossary of plant names add to the book's usefulness and interest.

WILSON, KENNETH A. Muskrat management and water level control. Wildlife in North Carolina 14(2): 8-10,14-15, illus. February 1950.
"Principal limiting factor in muskrat production [in Currituck Co., North Carolina] believed caused by extreme and irregular fluctuations in water from wind tides and the lack of stable water levels. The 10,000 acres of foodless needlegrass-sawgrass-cordgrass marsh is a limiting factor also." Wooden dikes improve these marshes. Mowing followed by flooding gave a high kill of undesirable vegetation.

MAMMALS--FURBEARERS (NUTRIA & RACCOON)

BUTTERFIELD, ROBERT T. The buying of den trees for raccoon management. The Journal of Wildlife Management 14(2): 244-246. April 1950.
Experiences in Coshocton County, Ohio lead the author to believe that den trees are worth saving and that they can be bought economically from timber buyers. "The raccoons used these den trees extensively before timbering started, immediately left the woods when timber cutting was in operation, and gradually returned to use the dens after timbering stopped."

MAMMALS--FURBEARERS (NUTRIA & RACCOON)--Continued

PETRIDES, GEORGE A. The nutria comes to Texas. Texas Game and Fish 8(6): 4-5,27, illus. May 1950.

Nutrias were introduced into 9 East Texas counties during the year 1947-48. Small lakes stocked with 10 or more animals for 6 months have been well cleared of such plants as waterlily, cattail, cutgrass, and arrowhead. "While we are gathering further information on the species, it probably would be well to further the spread of nutria only after extremely careful thought on the matter."

MAMMALS--FURBEARERS (FOXES & WOLVES)

CALHOUN, JOHN B. Population cycles and gene frequency fluctuations in foxes of the genus Vulpes, in Canada. Canadian Journal of Research 28,D(2): 45-57, illus. April 1950.

de VOS, A. Timber wolf movements on Sibley peninsula, Ontario. Journal of Mammalogy 31(2): 169-175, illus. May 1950.

"The travel routes of timber wolves in the study area are apparently mainly influenced by three factors: the topography of the area, the distribution of the most important prey animals, and seasonal changes of the climate." "It is my opinion that writers in the past have over-emphasized the existence of circuital movements."

PHILIPPE, LIONEL. Le renard roux Vulpes fulva fulva (Desmarest) et son influence écologique et économique durant la saison hivernale sur une partie de L'île de Montréal. Le Naturaliste Canadien 77(1-2): 5-43, illus. January-February 1950.

The author studied the red fox on Montreal Island, Quebec, in the winter of 1946-47. He discusses the environment, food, the population, and daily range. The principal foods identified in approximately 300 scats were field mice, chickens, and hawthorn fruits. The chickens were dead birds thrown away by poultry keepers. There were $3\frac{1}{2}$ foxes per square mile.

ROWAN, W. Winter habits and numbers of timber wolves. Journal of Mammalogy 31(2): 167-169, illus. May 1950.

A pack of 8 animals in Alberta foothills traveled in a 50-mile ellipse in the winter of 1944-45.

MAMMALS--RODENTS (GENERAL)

ADAMS, LOWELL. Consumption of ponderosa pine seed by small mammals. 4 pages. Northern Rocky Mountain Forest & Range Experiment Station, Research Note No. 80. March 1950.
This report tells of the apparent destruction by white-footed mice and chipmunks of most of the seed sown in a portion of the Kootenai National Forest, northwestern Montana in the fall and winter of 1948-49.

VETTER, R. H. and NICHOLSON, H. P. A lethal trap for capturing small mammals with their ectoparasites. Journal of Parasitology 36(3): 235-237. June 1950.
"A lethal gas trap employing hydrogen cyanide gas as the killing agent is described. Construction details are given. This trap has been used successfully to obtain information concerning the abundance of ectoparasites on roving small animals. Performance data under field conditions are presented."--Authors' summary.

MAMMALS--RODENTS (DOMESTIC RAT)

BROWN, JOHN H. Alberta: the only rat-free province in Canada. Canadian Journal of Public Health 39(9): 367-374, illus. September 1948.
The author describes physical conditions and the distribution of rats in western Canada. He says that Alberta will be kept rat-free only if an exclusion campaign is started at once in Saskatchewan.

HAMILTON, W. J., JR. Rats and their control. 34 pages, illus. Cornell Extension Bulletin 353. Revised March 1947.
An abstract of the original issue of this bulletin is on page 5 of Wildlife Review No. 7.

KUITUNEN-EKBAUM, E. and WEBSTER, DOROTHY. Trichinosis in wild rats in Toronto. Canadian Journal of Public Health 38(2): 76-78. February 1947.
9 rats of a total of 650 were infected with Trichinella.

MAMMALS--RODENTS (MICE, ETC.)

EADIE, W. ROBERT. Machine-baiting for control of orchard mice. Farm Research 16(3): 9, illus. July 1950.
"A method has recently been developed by which mouse bait can be distributed rapidly with common mechanical seeders. This has resulted in good control and substantial savings in labor costs." This work in New York State involved the use of coarsely cracked corn, with 2% zinc phosphide and with a green dye to repel birds.

MAMMALS--RODENTS (MICE, ETC.)--Continued

KALELA, OLAVI. Über Fjeldlemming-Invasionen und andere irreguläre Tierwanderungen, mit einer Übersicht der Kleinnagergradationen in Finnisch-Lappland 1900-1948. Annales Zoologici Societatis Zoologicae Botanicae Fennicae "Vanamo" 13(5): 1-90, illus. 1949.

This article has a summary in English and a bibliography of 150 titles. The author describes lemming migrations in Finnish Lapland, and attributes them to overpopulation and shortage of food. Lemmings and other species that migrate irregularly may thereby permanently extend their range; but most of them enter areas where conditions do not permit them to survive.

MOORE, AL W. Forest tree-seed-eaters and methods used to measure their populations in the Pacific Northwest Douglas fir region. The University of Washington Forest Club Quarterly 23(1): 7-11,25, illus. 1949-50.

White-footed mice are the principal seed eaters in this region. Populations can be measured better by using baited acceptance spots than by trapping.

ORR-EWING, A. L. Life history of the deer mouse. The Forestry Chronicle 26(2): 115-126, illus. June 1950.

A study on Vancouver Island, B. C. showed the necessity of controlling deer mice if direct seeding of Douglas fir on logged and burned land was to be successful.

REYNOLDS, HUDSON G. Relation of Merriam kangaroo rats to range vegetation in southern Arizona. Ecology 31(3): 456-463, illus. July 1950.

"Greater numbers of Merriam kangaroo rats were captured on grazed areas than on exclosures protected from livestock grazing for several years. Rat numbers tended to decrease as perennial grass density increased." "The detrimental effect of Merriam rats will probably be most pronounced on ranges in poor condition where the density of large-seeded perennial grasses is so low that most of the seed is consumed." "Reduction of kangaroo rats might be desirable under the above conditions. Control of rodents only enhances the possibility of seed germination. Livestock control must be practiced to assist in plant survival."

WEBER, NEAL A. The role of lemmings at Point Barrow, Alaska. Science 111(2890): 552-553. May 19, 1950.

Two species of lemmings are Point Barrow's most numerous mammals. Vegetation, arthropods, lemmings, and larger animals are links in a major food chain.

MAMMALS--RODENTS (SQUIRRELS & PORCUPINE)

HUBBARD, C. ANDRESEN. A pictorial review of the North American chipmunk fleas. Entomological News 60(10): 253-261, illus. December 1949.
Chipmunks are favored pets. "In certain localities over the country both the chipmunks and certain of their fleas have been found plague positive. The chipmunks and their fleas should, therefore, be watched carefully by health agencies."

LAMPIO, TEPPO. Squirrel economy in Finland based on natural prerequisites. Suomen Riista. Part 2. Pages 145-147. 1948.
This is a summary in English of a 48-page article in Finnish. The squirrel is Finland's most important game animal; therefore its annual take needs to be based on its population fluctuations. The author analyzes these fluctuations.

OLSON, ANDREW C., JR. Ground squirrels and horned larks as predators upon grunion eggs. California Fish and Game 36(3): 323-327, illus. July 1950.

SPENCER, D. A. The porcupine: its economic status and control. 7 pages. U. S. D. I., Fish and Wildlife Service, Wildlife Leaflet 328. May 1950.
This leaflet describes the appearance, quills, habits, breeding, food, economic status, and control of both the Canadian and yellow-haired porcupines.

UHLIG, HANS G. and WILSON, H. LEE. More than 1,000,000 pounds in State's annual squirrel crop. West Virginia Conservation 14(4): 6,29-30, illus. July 1950.
Gray and fox squirrels were the number one game animals in 1944, 1945, and 1946.

WADE, OTIS. Soil temperatures, weather conditions, and emergence of ground squirrels from hibernation. Journal of Mammalogy 31(2): 158-161, illus. May 1950.
Studies near Lincoln, Nebraska, over a series of years, indicate ".....that frozen soil presents a barrier through which ground squirrels cannot dig their way, thereby holding them imprisoned until sufficient thawing and loosening of the soil make digging out possible."

MAMMALS--RABBITS

LINK, VERNON B. Plague epizootic in cottontail rabbits. Public Health Reports 65(21): 696. May 26, 1950.

A survey of a number of wild animals was made in Lea County, New Mexico subsequent to diagnosis of a human case. Numerous pack rats and rabbits were found dead at the time. Plague was definitely diagnosed from two rabbits, and this species was implicated as a possible source of the human infection.--Carlton M.Herman.

PIRNIE, M. D. A test of hunting as cottontail control. Michigan Agricultural Experiment Station Quarterly Bulletin 31(3): 304-308, illus. February 1949.

Heavy hunting at the Kellogg Bird Sanctuary in southern Michigan during 16 consecutive Decembers (1932 through 1947) did not noticeably reduce the cottontail population during the following springs and summers. Diseases and predators, likewise, did not prevent annual recovery of the population.

MAMMALS--INSECT-EATERS

RICHMOND, NEIL D. and GRIMM, WILLIAM C. Ecology and distribution of the shrew Sorex dispar in Pennsylvania. Ecology 31(2): 279-282, illus. April 1950.

Occurs across the State in cool, moist talus in woods. Red-backed mouse is its commonest associate.

MAMMALS--MARINE

RAND, R. W. Branding in field-work on seals. The Journal of Wildlife Management 14(2): 128-132, illus. April 1950.

Recent technique with Cape fur-seals off the southwest African coast.

SCHEFFER, VICTOR B. Experiments in the marking of seals and sea-lions. 33 pages, illus. U. S. D. I., Fish and Wildlife Service, Special Scientific Report: Wildlife No. 4. April 1950.

This report reviews experiments in marking seals and sea-lions in the North Atlantic, North Pacific, and Antarctic regions; and discusses the results of marking northern fur seals from 1940 to 1949 on the Pribilof Islands, Alaska.

BIRDS--BIBLIOGRAPHY

STEWART, ROBERT E. and ALDRICH, JOHN W. A selected bibliography of ecological life history material on North American birds. Ecology 31(3): 469-471. July 1950.

BIRDS--COMMUNITIES & HABITATS

FITTER, R. S. R. London's birds. 256 pages, illus. Collins, 14 St. James's Place, London. 1949. 10 shillings and sixpence.

A fascinating account of the ways that a large and varied population of birds gets along in the world's largest city. From his own experiences and those of a large number of other people, extending through a good many years, the author discusses the principal habitats (buildings, the ground, trees and shrubs, marshes, the deeper waters, the air) and their use by birds; also migration, predators and prey, and man as friend or enemy.

BIRDS--DISEASES

YOUNG, MARTIN D. and HUNNINEN, ARNE V. Blood protozoa of birds at Columbia, South Carolina. Journal of Parasitology 36(3): 258-260. June 1950.

"Of 737 birds caught at Columbia, S. C., 27.5 percent showed some blood protozoa; 17.5 showed Plasmodium. P. relictum accounted for 67.0 percent of the plasmodia identified. In English sparrows, the plasmodia appeared to be less prevalent during the summer than during the remainder of the year."--Authors' summary.

BIRDS--FAUNAS & MANUALS

BOOTH, ERNEST SHELDON. Birds of the West. 397 pages, illus. Ernest Sheldon Booth, Walla Walla College, College Place, Wash. 1948. $3.75.

"I have written this book.....to teach the beginner the names of the birds in a way which will be self-explanatory, in a way which will require a minimum of effort, and no help at all from someone else." It is mainly a key to all the birds of the western states, with additional information on nests and distribution, and with many drawings of individual birds.

GODFREY, W. EARL. Birds of Lake Mistassini and Lake Albanel, Quebec. 43 pages, illus. National Museum of Canada, Bulletin No. 114. 1949. 25¢.

The author and others investigated this area in the summer of 1947. The report comprises accounts of the physiography, Indians, and habitats, and an annotated list of some 90 species of birds.

MANNING, T. H. The birds of north-western Ungava. In "A Summer on Hudson Bay" by Mrs. Tom Manning, pages 153-224, illus. Hodder and Stoughton Ltd., London. 1949. 12 shillings and sixpence.

A well-annotated list of 125 species, introduced by an account of the exploration upon which it is based.

BIRDS--FAUNAS & MANUALS--Continued

PARKES, KENNETH C. Further notes on the birds of Camp Barkeley, Texas. The Condor 52(2): 91-93. March-April 1950.
The author reports 20 species not in the list published in 1948 by Vincent P. McLaughlin, Jr. (see Wildlife Review No. 54, page 21). He gives additional information on a dozen others.

PETERS, JAMES LEE. Check-list of birds of the world. Volume VI. 259 pages. Harvard University Press, Cambridge, Mass. 1948. $6.50.
This volume lists the Piciformes: jacamars, puff-birds, barbets, honey-guides, toucans, wrynecks, piculets, and woodpeckers.

TODD, W. E. CLYDE. Notes on the birds of southern Saskatchewan. Annals of the Carnegie Museum 30: 383-421. October 1947.
This is an annotated list of 163 forms, collected near Davidson, Imperial, Elbow, and Dafoe in 1932.

BIRDS--FOOD

KENNEDY, CLARENCE HAMILTON. The relation of American dragonfly-eating birds to their prey. Ecological Monographs 20(2): 103-142. April 1950.
This is ".....a review of the habits of the water and land birds of America north of Mexico, which concern their use or not of dragonflies as food." It is based on an examination in 1926 of the records of the U. S. Biological Survey. 184 species had eaten dragonflies. The author discusses the position of dragonflies in the environment, the birds which do not eat them, and the birds which do eat them.

BIRDS--GENERAL TECHNIQUES

HOSKING, ERIC and NEWBERRY, CYRIL. The art of bird photography. 103 pages, illus. Transatlantic Arts, Inc., New York. 1948. $3.75.
This is an indispensable reference, according to a review by John K. Terres on page 132 of Audubon Magazine for March-April 1950.

SKUTCH, ALEXANDER F. On the naming of birds. The Wilson Bulletin 62(2): 95-99. June 1950.
A good discussion of the need for a single name for each species of bird, ".....applicable to all its subspecies, in the language which we speak and write." The author recommends the trial of names that seem more apt than those in current use; and suggests that the A. O. U. Committee on Nomenclature take cognizance of such names.

BIRDS--MANAGEMENT

LINCOLN, FREDERICK C. Birds protected by federal law. 13 pages. U. S. D. I., Fish and Wildlife Service, Wildlife Leaflet 327. May 1950.

This leaflet summarizes the Conventions for the protection of migratory birds in Canada, the United States, and Mexico; summarizes laws that protect other birds; and lists all of the protected species.

BIRDS--POPULATIONS

EDEBURN, R. M. A study of the breeding distribution of birds in a typical upland area. Proceedings of the West Virginia Academy of Science 18: 34-47, illus. 1947.

This article reports on the study of a 130-acre area in Beaver County, western Pennsylvania. The author found that thorough and repeated counting of singing males was a fairly satisfactory method for taking a breeding census of most species, and that "The density of breeding-bird population depends a great deal on the location of habitat types in respect to each other and the amount of habitat border present."

HEWITT, OLIVER H. Fifth census of non-passerine birds in the bird sanctuaries of the north shore of the Gulf of St. Lawrence. The Canadian Field-Naturalist 64(2): 73-76. March-April 1950.

This census was made in 1945. The others were made in 1925, 1930, 1935, and 1940.

SIIVONEN, LAURI. Quantitative bird survey and the short-term fluctuations in numbers. Ornis Fennica 25(3): 37-56. 1948.

BIRDS--WATERFOWL

CHAMBERLAIN, E. B. Report on waterfowl. Florida Wildlife 3(10): 3-5,16, illus. March 1950.

Comparative figures on ducks and coots in 5 Florida areas (Lake Okeechobee, Kissimmee valley, upper St. John's valley, Merritt's Island, and Indian River) in 1948-49 and 1949-50.

COBURN, DON R. and others. Phosphorus poisoning in waterfowl. Journal of the American Pharmaceutical Association, Scientific Edition 39(3): 151-158. March 1950.

Black ducks and mallards were found to be highly susceptible to phosphorus poisoning. 3 mg. of white phosphorus per kg. of body weight given in a single dose resulted in death of a black duck in 6 hours. Pathologic changes in both acute and chronic poisoning were studied. Data are presented showing that diagnosis can be made accurately by chemical analysis of stored tissues in cases of phosphorus poisoning.--Carlton M. Herman.

BIRDS—WATERFOWL—Continued

CRITCHER, STUART. North Carolina waterfowl kill, including kill data for primary hunting areas in North Carolina during the past three hunting seasons. Wildlife in North Carolina 14(7): 14-17, illus. July 1950.

DANIELSSON, ANDERS. Practical measures for the preservation of sea-fowl within the program of the societies for sea-fowl preservation. Suomen Riista. Part 2. Pages 169-170. 1948.
In this summary in English of an 8-page article in Finnish the author advocates the regulation of hunting times and methods and the killing of certain predatory birds.

DILL, HERBERT H. and THORNSBERRY, WILLIAM H. A cannon-projected net trap for capturing waterfowl. The Journal of Wildlife Management 14(2): 132-137, illus. April 1950.
This trap is economical to build, easy to operate, and effective in catching Canada geese and other waterfowl. The authors first used it in Missouri in December 1948.

DORR, RICHARD J. Partners—farmers and sportsmen. Potholes, marshes, and bogs (Part five). The Conservation Volunteer 13(76): 14-17, illus. May-June 1950.
How to increase waterfowl habitat in Minnesota.

GRENQUIST, PEKKA. A program for game research concerning water-fowl of the archipelago. Suomen Riista. Part 3. Pages 97-99. 1948.
This is a summary in English of a 31-page article in Finnish.

HANSON, HAROLD C. and SMITH, ROBERT H. Canada geese of the Mississippi flyway, with special reference to an Illinois flock. Bulletin of the Illinois Natural History Survey 25(Art. 3): 59-210, illus. March 1950.
This detailed and illuminating report is illustrated with many good maps and photos of the country from southern Hudson Bay to the Gulf of Mexico. It contains a wealth of information on the breeding range, migration, goose behavior, goose hunting in Illinois, other mortality factors, productivity, and survival. The main breeding range lies west of James Bay. The wintering flock at Horseshoe Lake near Cairo, Illinois comprises about 50% of the Mississippi Valley population. Hunting at Horseshoe Lake was for several years greatly in excess of what the flock could stand. "Increased protection.....plus certain other management practices resulted in an appreciable gain in the population by the fall and winter of 1948-49."

BIRDS--WATERFOWL--Continued

KOSSACK, CHARLES W. Breeding habits of Canada geese under refuge conditions. The American Midland Naturalist 43(3): 627-649. May 1950.
Most of this article comprises a detailed account of the behavior of selected birds from a flock of 250 that are held under semi-wild conditions on a 420-acre area in Cook Co., Illinois. Observations extended from 1944 to 1948. "Emphasis was placed on the breeding behavior of a goose once mated and then separated from its mate becuase of death or other reasons."

MARTIN, A. C. Literature references on waterfowl. U. S. D. I., Fish and Wildlife Service, Wildlife Leaflet 324. 10 pages. March 1950.
A classified list which excludes most articles in periodicals.

McHUGH, TOM. Underwater slaughter. Hunting and Fishing 27(2): 18-20, illus. February 1950.
2400 ducks were caught in the nets of one Lake Michigan fishery in one day in the spring of 1949. More than 5000 were taken in one haul on Lake Erie. Old-squaws are caught most frequently; black ducks, bluebills, and loons are also taken. Destruction of waterfowl and damage to nets will continue unless there is complete cooperation of wildlife investigators and commercial fishermen.

McLEAN, DONALD D. Duck banding at Tulare Lake. California Fish and Game 36(2): 75-117, illus. April 1950.
Nearly 10,000 ducks were banded in the Tulare Lake Basin during botulism outbreaks from 1938 to 1944. The data from banding and returns are presented in maps and detailed tables.

MENDALL, HOWARD L. The ducks that Maine hunters shoot. Bulletin of the Maine Audubon Society 5(2): 22-24. April 1949.
Exclusive of sea ducks, the kill in 1948 was more than 40% black ducks. About 18% were green-winged teal and 9% goldeneyes.

MENDALL, HOWARD L. Waterfowl management possibilities in Maine. Bulletin of the Maine Audubon Society 4(2): 23-26. April 1948.
Black ducks increased in 1946 on managed marshes on the Moosehorn National Wildlife Refuge, even though the population as a whole was in a decline. In 1947 they increased 70%, against a Statewide increase of 25%.

STEENIS, JOHN H. Studies on the use of herbicides for improving waterfowl habitat in western Kentucky and Tennessee. The Journal of Wildlife Management 14(2): 162-169, illus. April 1950.
Between 1945 and 1949 the author found that ammate and 2,4-D would control lotus, giant cutgrass, buttonbush, and other pest plants. 2,4-D was most effective when the plants were near their maximum foliage development; ammate was most effective when they were fruiting.

BIRDS--WATERFOWL--Continued

STEENIS, JOHN H. Waterfowl habitat improvement on Reelfoot Lake. Journal of the Tennessee Academy of Science 25(1): 56-64. January 1950.

Two main types of improvement are possible: (1) preserving the lake by keeping soil from washing into it and (2) eliminating some of the undesirable plants, such as willows, buttonbush, giant cutgrass, lotus, spatterdock, and coontail.

STOLLBERG, BRUCE P. Food habits of shoal-water ducks on Horicon Marsh, Wisconsin. The Journal of Wildlife Management 14(2): 214-217. April 1950.

Bulrush seed was the most important food during the fall and spring of 1947-1948. Snails were valuable as food and as grit. Insect larvae, bur-reed, duckweed, rice cutgrass, sedge, spikerush, and water plantain were important spring foods.

BIRDS--SHOREBIRDS

DANGLER, EDGAR W. and MARSHALL, WILLIAM H. Woodcock studies at Cloquet Forest Experiment Station, Minnesota. The Flicker 22(1): 1-7. March 1950.

Field studies were carried on during the spring and summer of 1947; censuses of singing males were made in the same area in 1948 and 1949. Most of the woodcock seen in summer were in alder stands. Woodcock increased during the 3 years.

ERICKSON, ARNOLD B. Bibliography of Wilson's snipe. The Flicker 22(1): 23-26. March 1950.

The first part of a 250-item bibliography begun in 1939 and kept up-to-date.

BIRDS--UPLAND GAME (GENERAL)

BERSING, OTIS S. Winter feeding game birds. Wisconsin Conservation Bulletin 14(12): 18-20, illus. December 1949.

The author describes feeding with corn in Wisconsin during the past several years.

KOSKIMIES, JUKKA. Siipimerkintä, uusi menetelmä riistalintujen vaellusten tutkimista varten. [Wing marking--a new method for marking gallinaceous birds]. Ornis Fennica 24(2): 54-58, illus. October 1947.

Leg rings are unsuitable for marking gallinaceous birds. The Finnish Foundation of Game Preservation has adopted a marker which is a 12x12 mm. plate of aluminum, ".....attached to the patagium of the anterior border of the wing in a manner reminiscent of a safety-pin."

BIRDS--UPLAND GAME (BOBWHITE & CALIFORNIA QUAIL)

FRYE, O. EARL. Are bobwhite cafeterias the answer? Florida Wildlife 3(10): 6-7,13,20, illus. March 1950.
Year-around automatic feeders appear to be responsible for a big increase in the quail populations on several experimental areas. They have not affected the behavior of the birds.

KLIMSTRA, W. D. Notes on bob-white nesting behavior. Iowa Bird Life 20(1): 2-7, illus. March 1950.
Observations made in Davis County, Iowa in 1946 and 1947.

MACGREGOR, WALLACE G. The artificial roost--a new management tool for California quail. California Fish and Game 36(3): 316-319, illus. July 1950.
Two artificial roosts gave adequate shelter to 435 birds that previously had had to depend on 2 olive trees in a San Luis Obispo County, California ranch yard.

SCHULTZ, VINCENT. A modified Stoddard quail trap. The Journal of Wildlife Management 14(2): 243, illus. April 1950.

SNEED, KERMIT and JONES, GLENN. A preliminary study of coccidiosis in Oklahoma quail. The Journal of Wildlife Management 14(2): 169-174. April 1950.
On the basis of an examination of a total of 64 quail, Eimeria spp. infection varied from 31.8% in 22 wild bobwhite to 53.1% in 38 captive bobwhite. 8 captive scaled quail were negative. Intensity of infection appeared to be higher in the wild quail and higher and more frequent in the females. One species was identified as E. dispersa.--Carlton M. Herman.

TEMPLE, LAWRENCE. For better quail shooting in Oklahoma. 16 pages, illus. Oklahoma Game and Fish Department, Oklahoma City. March 1949.
This bulletin tells sportsmen's clubs, farmers, and young folks what they can do to grow more food and more escape cover.

THOMPSON, DONALD R. and KABAT, CYRIL. The wing molt of the Bob-white. The Wilson Bulletin 62(1): 20-31, illus. March 1950.
"An analysis of the uniformity of the postjuvenal molt of primaries in wild juvenile Bob-white by 2 independent procedures indicates that the standard deviation of the error of age determination is about 2.0 days." "A method is described for detecting unmolted primaries in both juvenile and adult quail.....and another description enables a distinction to be made between yearling quail and older adults during the postnuptial molt."

BIRDS--UPLAND GAME (PHEASANT)

ALLEN, DURWARD L. Problems and needs in pheasant research. The Journal of Wildlife Management 14(2): 105-114. April 1950.
The author recommends a 10-year plan for cooperative research by state and federal agencies, such a plan to include ".....long-term basic studies on physiology, nutrition, and reproduction, and sample-area experimentation for the improvement of habitats."

ANONYMOUS. Pheasant stocking policy. 11 pages, illus. New York State Conservation Department, Fish & Wildlife Information Bulletin No. 5. 1950.
"The most that can be expected from stocking is to restock depleted covers and thus assist in the maintenance of an adequate breeding stock--and to supply some supplemental cock birds forshooting."

DUSTMAN, EUGENE H. Effects of alfalfa mill cutting on pheasants and other wildlife in Wood County, Ohio, 1946-1947. The Journal of Wildlife Management 14(2): 225-234, illus. April 1950.
"In the 1946 sample, one pheasant casualty was represented in each 4 acres of alfalfa cut. In 1947, one casualty was found in each 6 acres cut." Most of the mortality was among incubating hens and juveniles (In 1947, 50% of the incubating hens in the sample were killed or crippled). After the first cutting many more birds were killed or crippled by night mowing than by day mowing. Casualties were several times greater in mill-cut than in farmer-cut alfalfa.

FABER, LESTER F. The effect of farm crops on the production of the ring-necked pheasant in Iowa. Proceedings of the Iowa Academy of Science for 1948. Volume 55, pages 109-113, illus. 1948.
In the period 1937 through 1946 "The rise and fall of populations corresponds with the rise and fall of the acreage in good crops and also corresponds inversely with the rise and fall of the acreage of poor crops."

KIMBALL, JAMES W. South Dakota pheasant management. South Dakota Conservation Digest 17(6): 10,12. June 1950.
South Dakota for years has had a very large pheasant population. Development of winter cover is controlling one partially understood cause of mortality. "The greatest hope for pheasant management appears to lie in the field of environmental controls, but progress has been all but stalemated for lack of knowledge." "The field of pheasant research must be coordinated and it must be inspired."

BIRDS--UPLAND GAME (PHEASANT)--Continued

LEEDY, DANIEL L. and COLE, CLARENCE R. The effects on pheasants of corn treated with various fungicides. The Journal of Wildlife Management 14(2): 218-225. April 1950.

From experiments with 7 fungicides commonly used in Ohio the authors concluded ".....that the consumption of corn treated with fungicides at the rate recommended by the manufacturers is not likely to be a serious factor in pheasant mortality or pheasant production."

NELSON, URBAN C. Pheasant use of food and cover types, northwestern Minnesota. The Journal of Wildlife Management 14(2): 234-237. April 1950.

In Ottertail County during the winters of 1940-41, 1946-47, and 1947-48 pheasants spent most of the daylight hours feeding or cruising. Corn was the most important food; manure, legumes, and grit also were important. Sloughs were the most important cover; woods, brush, and farmsteads also were important.

SIEGLER, HILBERT R. The ring-necked pheasant in New Hampshire. 82 pages, illus. New Hampshire Fish and Game Department, Survey Report No. 5. 1949.

A 15-page chart and full-page reproductions of 33 U. S. Geological Survey topographic maps show the distribution of pheasant cover in southern New Hampshire. The text includes discussions of pheasant habitat, history, limiting factors, and management in the State. The main limiting factor is lack of habitat, particularly standing corn in winter. Hunting pressure is very heavy, therefore stocking is an important part of management.

BIRDS--UPLAND GAME (GROUSE)

FALLIS, A. MURRAY and HOPE, C. E. Observations of ruffed grouse in southern Ontario with a discussion on cycles. The Canadian Field-Naturalist 64(2): 82-85. March-April 1950.

Observations were made from 1944 to 1948 on nesting, temperature and egg laying, nests and predators, winter mortality, and other factors. The fall of grouse populations appears to be due to a complex of conditions.

HALE, JAMES B. and WENDT, ROBERT F. Reports on the 1949 ruffed grouse season. Wisconsin Conservation Bulletin 15(3): 11-14, illus. March 1950.

Data on more than 2000 grouse showed good breeding success in 1949 and good prospects for the next hunting season.

BIRDS--UPLAND GAME (GROUSE)--Continued

MAGNUS, LESTER T. Cover type use of the ruffed grouse in relation to forest management on the Cloquet Forest Experiment Station. The Flicker 21(2): 29-44, illus. and 21(3): 73-85, illus. June and September 1949.

This article is based on 9 years observations during an 18-year period. It describes 16 forest cover types; discusses their relative use; and discusses differences in cover type use between the Cloquet Forest and areas in New York and Michigan. Usage was similar in the 3 areas. The present forest management program of cutting small blocks of jack pine favors grouse.

PATTERSON, ROBERT L. Sage grouse populations and land utilization patterns in the Mountain West. Wyoming Wild Life 14(5): 4-11,29-35, illus. June 1950.

Sagebrush-grass and salt-desert shrub range types in the Great Basin and Central Rockies are the main habitat of sage grouse and antelope. Elimination of sagebrush and illegal killing have drastically reduced sage grouse numbers in some areas. Some range experts advocate intensive sagebrush eradication because of its low nutritive value to livestock. "Any land use practice which reduces sagebrush on the western range will reduce the carrying capacity of that range for livestock, big game, and sage grouse populations." In Wyoming, large reclamation projects have seriously reduced sage grouse and antelope populations; but "isolated and small reclamation projects surrounded by extensive sagebrush areas were responsible for local increases in sage grouse numbers, ..." "The fate of sage grouse, antelope, and associated wildlife species in the Mountain West will depend upon the nature of our land use programs and the knowledge of our wildlife."

PATTERSON, ROBERT L.; PUTNAM, BUVERN F.; and SANDERSON, H. B. Trapping sage grouse in Wyoming. Wyoming Wild Life 14(3): 4-13, illus. April 1950.

More than 1100 grouse were trapped from alfalfa fields in Eden Valley during a 2-months' period in 1949. They were released in 5 counties, with a total loss of 24 birds.

BIRDS--UPLAND GAME (WILD TURKEY)

CRAIG, FRANK R. and BARKALOW, FREDERICK S., JR. Blackhead in wild turkeys. Wildlife in North Carolina 14(2): 18-19, illus. February 1950.

Found in Halifax Co., North Carolina in the fall of 1948.

BIRDS--UPLAND GAME (DOVES)

LABZOFFSKY, N. A. Ornithosis among "wild" pigeons in Ontario. Canadian Journal of Public Health 38(4): 187-192. April 1947.
Evidence of its occurrence in pigeons from each of 3 cities.

LASTRA, IVONNE and COATNEY, G. ROBERT. Transmission of Haemoproteus columbae by blood inoculation and tissue transplants. Journal of the National Malaria Society 9(2): 151-152. June 1950.
"Haemoproteus columbae infections in pigeons were transmitted in four of six trials by the transfer of 10 ml. of blood from donor birds which had been inoculated with sporozoites four days previously. Single trials at 8,12,14 and 26 days were unsuccessful. Transplants of lung tissue were infective when taken from 14-, 20- or 26-day old prepatent infections, but were negative at 8, 12 and 14 days. Transplants of spleen, liver, heart and brain from the above pigeons were not infective."--Authors' summary.

McCULLOCH, NORMAN B. Protozoic disease in the mourning dove. Wildlife in North Carolina 14(5): 22, illus. May 1950.
Description from a North Carolina dove of an eye infection caused by Trichomonas gallinae.

UZZELL, P. B. White wings; coming back? Texas Game and Fish 8(5): 4-5, 34, illus. April 1950.
Following the destruction of the best native brush nesting cover in the lower Rio Grande Valley, white-winged doves have taken to nesting in large numbers in citrus groves.

BIRDS--HAWKS & OWLS

BROUN, MAURICE. Hawks aloft--the story of Hawk Mountain. 222 pages, illus. Dodd, Mead & Co., New York. 1949. $4.00. (Copied from The Wilson Bulletin for March 1950, page 48).
A review by Henry H. Collins, Jr. says, in part, "Hawks Aloft is the story of the Great Hawk Slaughter on Hawk Mt., and then of the building on these former shooting stands of the world's first hawk sanctuary." "Here is a good book--a modern bird classic. It will widen the interests and broaden the outlook of the mere bird-lister. Out of the pure ornithologist, it will, or at least should, made a conservationist."

BIRDS--SONGBIRDS
(See also MAMMALS--RODENTS (SQUIRRELS & PORCUPINE), Olson)

BENT, ARTHUR CLEVELAND. Life histories of North American wagtails, shrikes, vireos, and their allies. 411 pages, illus. United States National Museum, Bulletin 197. 1950. $1.50 from Government Printing Office.
This is the 18th in a series of detailed bulletins. In addition to the families mentioned in the title it includes waxwings, phainopepla, and starlings.

BIRDS--SONGBIRDS--Continued

FITCH, FRANK WILLIAMS, JR. Life history and ecology of the scissor-tailed flycatcher, Muscivora forficata. The Auk 67(2): 145-168, illus. April 1950.

"This paper combines previous observations of many workers with those made by the author during an 18-month study in Brazos County, Texas." Scissor-tailed flycatchers inhabit ".....the prairie-deciduous forest ecotone of south-central United States from March to October; ....." Grasshoppers are the favored summer food. The species is highly territorial during the breeding season; but males, unmated females, and birds of the year roost together.

GILLESPIE, J. H.; KESSEL, B.; and FABRICANT, J. The isolation of Newcastle disease virus from a starling. The Cornell Veterinarian 40(1): 93-94. January 1950.

European starling, Sturnus vulgaris, in vicinity of Ithaca, New York. --Carlton M. Herman.

HANN, HARRY W. Nesting behavior of the American dipper in Colorado. The Condor 52(2): 49-62, illus. March-April 1950.

This study was made in 1947 and 1948, in the Gothic region at an altitude of 9,000-10,000 feet. In addition to presenting the facts he observed, the author discusses controversial and doubtful statements in literature. He confirms some of these, and indicates others that are unproven or in need of qualification.

HAYNE, DON W. and CARDINELL, H. A. Damage to blueberries by birds. The Quarterly Bulletin 32(2): 213-219, illus. November 1949.

In Michigan "Losses to birds in plantations of cultivated blueberries of commercial size appear minor and not to justify much expenditure in crop protection. Damage in small plantings may be severe." In the latter case, bushes may be protected by caps of mosquito netting.

SKUTCH, ALEXANDER F. Outline for an ecological life history of a bird, based upon the song tanager Ramphocelus passerinii costaricensis. Ecology 31(3): 464-469. July 1950.

The writer describes the behavior and environment of this common bird of the Pacific lowlands of southern Costa Rica and adjacent Panama, and presents a detailed outline that may ".....serve as a guide for the study of other land birds, chiefly by the inclusion of sections on migration and territory, ..."

REPTILES & AMPHIBIANS

AUFFENBERG, WALTER. A new subspecies of the mud snake, Liodytes alleni. Herpetologica 6(1): 13-16, illus. March 1950.

The monotypic genus Liodytes is divided into two races, L. a. alleni from northern and central Florida, L. a. lineapiatus from southern Florida. Knowledge of the habits and ecology of the species is summarized.--W.H. Stickel.

BARBOUR, ROGER W. The reptiles of Big Black Mountain, Harlan County, Kentucky. Copeia 1950 (2): 100-107. June 1950.

A report on 170 reptiles of 16 species collected in the course of a 4-month faunal survey made primarily in the summer of 1948. Data on habitat, reproduction, and foods are given more fully than in most local lists.--W. H. Stickel.

CAGLE, FRED R. and CHANEY, A. H. Turtle populations in Louisiana. The American Midland Naturalist 43(2): 383-388, illus. March 1950.

Turtle trapping at 14 localities in Louisiana in 1947 gave information on relative abundance and ecological preferences of several species. Predominance of Pseudemys s. troostii and Amyda spinifera was conspicuous. The authors point out that trapping is a selective method, and therefore does not give a reliable index to the relative abundance of different species and size groups.--W. H. Stickel.

CAMIN, JOSEPH H. An isolation chamber for the study of individual ectoparasites on their hosts. Journal of Parasitology 36(1): 41-44. February 1950.

The isolation chamber is simple in construction, made with celluloid sheeting and tubing, microscope cover glasses, and acetone. It is claimed that with this apparatus it is possible to isolate individual parasites on the host and observe their development. It has been used successfully in the observation of several generations of mites on a snake. The apparatus should prove useful in similar studies on other hosts.--Carlton M. Herman.

CAMPBELL, HOWARD. Rattlesnakes tangled in wire. Herpetologica 6(2): 44. June 1950.

Two rattlesnakes attempted to crawl through one-inch mesh poultry fence around a quail pen and became stuck, unable to move forward or backward. The author suggests that a snake trap designed on this principle might be useful under special circumstances.--W. H. Stickel.

CONANT, ROGER. On the taxonomic status of Thamnophis butleri (Cope). Bulletin of the Chicago Academy of Sciences 9 (4): 71-77. June 1950.

The author disagrees with A. G. Smith's proposal to treat T. butleri and T. brachystoma as subspecies of T. radix, and points out reasons for considering them full species. Smith's paper was abstracted in Wildlife Review No. 58, p. 48.--W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

DOWLING, HERNDON G. Studies of the black swamp snake, Seminatrix pygaea (Cope), with descriptions of two new subspecies. Miscellaneous Publications, Museum of Zoology, University of Michigan, No. 76. Pages 1-38, illus. March 1950. $1.25.

Races of Seminatrix recognized are: paludis from the Carolinas, pygaea from southern Georgia and northern Florida, cyclas from southern Florida. Variation is treated statistically. The probable distributional history of the species is discussed. There is much information on ecology, food habits, breeding, and growth, with especial attention being paid to the annual reproductive cycle.--W. H. Stickel.

HAMILTON, W. J., JR. Food of the prairie rattlesnake (Crotalus v. viridis Rafinesque). Herpetologica 6(2): 34. June 1950.

Stomachs of 7 rattlers from southwestern South Dakota were examined. "Every snake contained food. All individuals had eaten field mice, Microtus sp. Two snakes contained in addition the remains of lizards, Phrynosoma."--W. H. Stickel.

HAMILTON, W. J., JR. Notes on the food of the congo eel, Amphiuma. Natural History Miscellanea No. 62. Pages 1-3. June 1950.

Literature on the foods of this huge southern salamander is reviewed. Data on the stomach contents of 36 individuals from Florida and South Carolina are summarized. Insects, amphibians, reptiles, fishes, and crustaceans are the major foods. "The relatively few groups eaten by Amphiuma reflect the scarcity of different items of aquatic prey. Presumably the Congo eel eats that which it can master. Any prey of suitable size is engulfed."--W. H. Stickel.

HOWARD, WALTER E. Birds as bullfrog food. Copeia 1950 (2): 152. June 1950.

A bullfrog living in a garden pool occasionally attempted to catch birds by springing at them, and was once seen to catch, drown, and eat a brown towhee. A yellow-throat was found in the stomach of another bullfrog.--W. H. Stickel.

INGLE, ROBERT M. and SMITH, F. G. WALTON. Sea turtles and the turtle industry of the West Indies, Florida and the Gulf of Mexico. 107 pages. University of Miami Press. 1949.

A review by Ernest F. Thompson on page 494 of Ecology for July 1950 says, in part, "An annotated bibliography is included, and this is presented in such a manner than the worker can at a glance see what references are of importance to him." "The great value of this book and its future usefulness reemphasizes the need throughout the Caribbean area for summarization of data on the marine resources. It should emphasize the extremely valuable work which the Marine Laboratory of the University of Miami is doing for the whole area. This laboratory is now unquestionably the preeminent center of marine research for the West Indies, ..."

REPTILES & AMPHIBIANS--Continued

KNOWLTON, G. F. and VALCARCE, A. C. Insect food of the sagebrush swift in Box Elder County of Utah. Herpetologica 6(2): 33-34. June 1950.
A report on the insects found in 193 stomachs of Sceloporus g. graciosus. --W. H. Stickel.

LEWIS, THOMAS HOWARD. The herpetofauna of the Tularosa Basin and Organ Mountains of New Mexico with notes on some ecological features of the Chihuahuan Desert. Herpetologica 6(1): 1-10, illus. March 1950.
The region and its ecology are briefly described. There are photographs of 8 typical habitats. Observations on the ecology of 5 kinds of amphibians, 13 lizards, 15 snakes, and 1 turtle are given in an annotated list.--W. H. Stickel.

LOWE, CHARLES H., JR. The systematic status of the salamander Plethodon hardii, with a discussion of biogeographical problems in Aneides. Copeia 1950 (2): 92-99, illus. June 1950.
P. hardii is transferred to the genus Aneides as a result of comparative morphological studies. The distributional history of the species of Aneides is reviewed in connection with paleobotanical evidence.--W. H. Stickel.

MORRIS, KENNETH S. and ZWEIFEL, RICHARD G. Observations on the habits of the ornate box turtle, Terrapene ornata (Agassiz). Natural History Miscellanea No. 58. Pages 1-4. March 1950.
The observations reported were made in Socorro Co., New Mexico during the summer of 1948. The turtles range over a variety of plant and soil types but avoid rocky areas. They are most active during or just after showers, and are aquatic under favorable circumstances. Foods include carrion and spadefoot toad tadpoles, but metamorphosed spadefoots are distasteful. Adults take shelter from the sun by hiding under plants. They use burrows during cold periods. Defense is by biting and release of pungent urine. The defenseless young seem scarce and are probably secretive. A completed mating is described.--W. H. Stickel.

SHAW, CHARLES E. The Gila monster in New Mexico. Herpetologica 6(2): 37-39. June 1950.
Evidence is presented that this venomous lizard occurs in extreme southwestern New Mexico, at least in the western portions of Grant and Hidalgo Counties.--W. H. Stickel.

SHAW, CHARLES E. Lizards in the diet of captive Uma. Herpetologica 6(2): 36-37. June 1950.
Captive fringe-footed sand lizards that were already being well fed readily killed and ate lizards of several kinds, including members of their own species.--W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

SMITH, HOBART M. Milestones in herpetology, 1948. Turtox News 27(11,12): 250-251,271-273 and 28(1,2): 14-16,54-56. November 1949--February 1950.

The author lists and discusses 23 publications under the headings of natural history, physiology, anatomy, taxonomy, and zoogeography. They include the Comstock Publishing Company's phonograph records of the calls of frogs and toads.

STEBBINS, ROBERT C. and RIEMER, WILLIAM J. A new species of plethodontid salamander from the Jemez Mountains of New Mexico. Copeia 1950 (2): 73-80, illus. June 1950.

Plethodon neomexicanus is described and its ecology is discussed. This is the only member of its genus now known from the southern Rocky Mountain region.--W. H. Stickel.

WOODIN, WILLIAM H., III. Notes on Arizona species of Thamnophis. Herpetologica 6(2): 39-40. June 1950.

Field observations on habits and ecology of 5 kinds of garter snakes: T. elegans vagrans, T. eques cyrtopsis, T. marcianus nigrolateris, T. subcarinatus megalops, and T. rufipunctatus.--W. H. Stickel.

INSECTS

PETERSON, ALVAH. Larvae of insects; an introduction to Nearctic species. Part I. Lepidoptera and plant infesting Hymenoptera. 315 pages, illus. Edwards Brothers, Inc., Ann Arbor, Mich. 1948. $5.00.

A review by Robert W. L. Potts on page 766 of The American Midland Naturalist for May 1950 says, in part, "The ease and certainty of identification [of Lepidoptera] possible with the excellent key and 58 plates will delight those who have used the previously available general keys." "The keys in this volume have been student-tested in the author's classrooms, ..." "Each section contains a selected, though extended bibliography to important collateral studies. A glossary and host index in addition to the regular index are an unexpected bonus to an already outstanding volume."

ARACHNIDS

BROWN, JOHN H. and KOHLS, GLEN M. The ticks of Alberta with special reference to distribution. Canadian Journal of Research D, 28(3): 197-205, illus. June 1950.

The authors discuss 9 species that were collected during a period of 11 years. Generalized ranges of 4 of these are shown on separate maps, and individual localities for the other 5 are shown on a single map. All but one species occurred on one or more wild birds or mammals.

VEGETATION--BIBLIOGRAPHY

SENN, HAROLD A. A bibliography of Canadian plant geography. VII. Additions; author, geographic and subject indices for the period 1635-1935. Transactions of the Royal Canadian Institute No. 55; 26(pt.1): 9-151. October 1946.
Six parts of this bibliography were issued between 1928 and 1936 under the authorship of John Adams. The present part brings the number of entries to 3562. All are thorougly indexed.

SENN, HAROLD A. A bibliography of Canadian plant geography. VIII. The period 1936-1940. Transactions of the Royal Canadian Institute No. 56; 26(pt. 2): 153-344. October 1947.
This part contains entries 3563 to 4384. There are geographic and subject indexes.

VEGETATION--COMMUNITIES & HABITATS

BERG, L. S. Natural regions of the U. S. S. R. 436 pages, illus. The Macmillan Company, New York. 1950. $10.00.
This work was first published in Russian in 1937. The present edition is said to follow the Russian text scrupulously. The author is Russia's leading geographer and has investigated and written in most of the fields that have a bearing on geography. As a consequence, the book contains a wealth of information on the climate, relief, soils, vegetation, and fauna of each great landscape type: tundra, taiga, mixed forests, broad-leaved forests of the Far East, forest steppe, steppe, semidesert, desert, mountains of central Asia, humid subtropics, Caucasus, mountain Crimea, Ural Range, Altay, Sayans, Lake Baikal and the trans-Baikal, mountains of northeastern Siberia, mountains of the Far East, Sakhalin, Kamchatka, arctic mountains. The reader is helped by a translator's foreword and bibliography, and by maps, charts, photos, a glossary, an index of plants, an index of animals, and a general index.

CORE, EARL L. Notes on the plant geography of West Virginia. Castanea 15(2): 62-79, illus. June 1950.
Most of this article deals with the plant communities of the State.

EGLER, FRANK E. Regional vegetation literature. III. Massachusetts. Phytologia 3(5): 193-237, illus. February 1950.
This annotated bibliography follows in form and content the author's bibliographies on the vegetation of Connecticut and Rhode Island (see Wildlife Review No. 60, page 54). It contains 304 references.

MARKS, JOHN BRADY. Vegetation and soil relations in the Lower Colorado Desert. Ecology 31(2): 176-193, illus. April 1950.
Southern Arizona and California.

VEGETATION--COMMUNITIES & HABITATS--Continued

SATHER, JOHN H. A light meter for cover-density measurement. The Journal of Wildlife Management 14(2): 138-143, illus. April 1950.
"The light meter provides an objective measure of cover density, and also a training device for fairly accurate visual evaluation of cover."

VEGETATION--FLORAS & MANUALS

BILLINGTON, CECIL. Shrubs of Michigan. 2nd ed. 339 pages, illus. Cranbrook Institute of Science, Bulletin No. 20, Second Edition. 1949. $4.50.
This book was ".....designed principally for amateur use....."; but because of its pictorial glossary, keys, ample descriptions, simple but accurate drawings, and maps showing occurrence by counties it is more useful and interesting than many books planned for the use of professional botanists. It is one of a very few books that deals particularly with shrubs.

DUNCAN, WILBUR H. Preliminary reports on the flora of Georgia. 2. Distribution of 87 trees. The American Midland Naturalist 43(3): 742-761, illus. May 1950.
This article maps the distribution by counties of each species and gives notes on habitats and abundance. It tells how 5 x 8 Keysort cards were used to facilitate tabulation of data.

FERNALD, MERRITT LYNDON. Gray's manual of botany. Eighth (Centennial) edition--illustrated. 1632 pages, illus. American Book Company, New York. 1950. $9.50.
The 7th edition, published in 1908, described 4885 kinds of plants (4079 species). The 8th describes 8340 kinds (5523 species). It covers Newfoundland; Anticosti Island; Canada south of the 49th parallel; and northeastern United States, south through Virginia, Kentucky and Missouri, west through Minnesota and Iowa. Dichotomous, indented keys are present throughout, and help to make this manual more usable than was the previous edition. In other respects the two editions are similar.

FREER, RUSKIN S. A preliminary checklist of plants of the central Virginia Blue Ridge. Castanea 15(1): 1-37. March 1950.
The author's introduction takes account of geology, physiography, and fire as environmental factors. The list of plants gives records of occurrence by counties (Amherst, Augusta, Bedford, Botetourt, Nelson, Rockbridge).

KOCH, LEO FRANCIS. Mosses of California: an annotated list of species. Leaflets of Western Botany 6(1): 1-40. February 1950.
317 species.

VEGETATION--FOREST

DORMAN, KEITH W. and SIMS, IVAN H. Loblolly pine bibliography. 65 pages, illus. Southeastern Forest Experiment Station, Station Paper No. 6. November 1949.

Loblolly pine grows in 15 states and comprises about half of the pine timber in the South. This bulletin lists references alphabetically by authors under 11 separate headings, which include ecology, effect of fire, and effect on soil. There is a general author index.

ELIASON, FRANK and others. Report of the Royal Commission on Forestry relating to the forest resources and industries of Saskatchewan, Canada. 150 pages, illus. 1947. $1.00.

A section on "Effect of Animals on the Forest", pages 69-73, reports the belief that squirrels help to spread the seed of conifers, that snowshoe hares damage jack pine reproduction, that there is little evidence of damage by deer to young forest growth, and that beaver are important conservers of water on the land.

HAIG, I. T. Biennial report of the Southeastern Forest Experiment Station for the years 1947 and 1948. Southeastern Forest Experiment Station, Station Paper No. 2. 61 pages, illus. 1949?

This report has no section on wildlife, but some of the practices described are important to wildlife managers. There is a list of publications by staff members.

McCORMACK, J. F. Forest resources of South Florida, 1949. 21 pages, illus. Southeastern Forest Experiment Station, Forest Survey Release No. 33. March 1950.

This survey covers 10 counties. 42% of the total land area is forest; about 43% is marsh. The survey combined the use of aerial photos, cover type maps, and ground plot examinations. Most of the commercial forest is slash pine and cypress. Cypress has decreased and pine has increased since 1936.

QUARTERMAN, ELSIE. Ecology of cedar glades. I. Distribution of glade flora in Tennessee. Bulletin of the Torrey Botanical Club 77(1): 1-9, illus. January-February 1950.

Cedar glades occupy flat exposures of Lebanon limestone in Middle Tennessee. "There is a close relationship between physiography and vegetation....." "Ability to survive the spring saturation and fall drought is a factor in determining restriction of species to glade habitats."

QUARTERMAN, ELSIE. Major plant communities of Tennessee cedar glades. Ecology 31(2): 234-254, illus. April 1950.

Structure and relationships of plant communities on Lebanon limestone in middle Tennessee.

VEGETATION--FOREST--Continued

QUINN, I. T. Management of national forest lands for wildlife. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 225-230. 1949?

An account of cooperative wildlife management on the George Washington and Thomas Jefferson National Forests in Virginia. Resident Wildlife Managers are the administrators of the main job of habitat restoration.

ROBERTS, E. V. and others. Forest statistics of western Kentucky. 19 pages, illus. Central States Forest Experiment Station, Forest Survey Release No. 8. April 1950.

This 11-county area is one-third forested. Nearly 60% of the commercial forest area is oak-hickory; 16% is bottomland hardwood; 12% is mixed hardwood. There are brief descriptions of 5 forest types. Data are based on the study of aerial photos and the field examination of plots.

ROE, ARTHUR L. and BOE, KENNETH N. Ponderosa pine bibliography. 74 pages, illus. Northern Rocky Mountain Forest & Range Experiment Station, Station Paper No. 22. March 1950.

Ponderosa pine is the most widely distributed of the valuable western pines. The references pertain primarily to forest management. They are arranged alphabetically by authors in a single list, which is followed by a detailed subject index.

SWIFT, LLOYD W. Management of national forest lands for wildlife. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 221-224. 1949?

An account of the cooperative wildlife work that fits into a program of multiple use of forest resources.

VEGETATION--BRUSHLAND

FISHER, C. E. The mesquite problem in the Southwest. Journal of Range Management 3(1): 60-70, illus. January 1950.

Mesquite has been a vigorous invader of grassland. It is difficult to control because of its ability to sprout and grow from seed. Sodium arsenite is the most economical means of control; but is dangerous. Grubbing is effective, but expensive.

VEGETATION--GRASSLAND

ALLRED, B. W. What should Texas expect from range conservation. The Texas Journal of Science 2(1): 7-14, illus. March 1950.

The author describes practices that when applied to 116 million acres of native grazing land would double the State's present grass resources for use by livestock and wildlife.

VEGETATION--GRASSLAND--Continued

HANSON, HERBERT C. Ecology of the grassland. II. The Botanical Review 16(6): 283-360. June 1950.

The first paper of this series, published in 1938, dealt largely with the floristics and structure of plant communities and methods of measuring them. The present paper deals with later developments of the same subjects under such subheadings as floristic composition, stratification of organisms, periodicity, vitality, life-forms, association of species, number of individuals, area and volume occupied, height and weight of plants, frequency, constancy, fidelity, and dominance. There is a list of 304 references.

KEEVER, CATHERINE. Causes of succession on old fields of the Piedmont, North Carolina. Ecological Monographs 20(3): 229-250, illus. July 1950.

The usual dominants in these abandoned fields are (1) crabgrass in the fall following the last cultivation, (2) horseweed in first-year fields, (3) Aster pilosus in second-year fields, and (4) broomsedge in third-year fields. The author studied various elements in the life histories and environment of these species and concludes ".....that the particular timing of the events in the life cycles of the first series of invaders and its relation to the season of the year at which secondary succession is initiated may influence the dominant species more than changes in environment. Although the influence of a species on its environment often may produce conditions that keep the species from surviving, those conditions do not always make the environment more favorable for the next invader."

SAUER, CARL O. Grassland climax, fire, and man. Journal of Range Management 3(1): 16-21. January 1950.

The author believes the major grasslands of the world are due to fire not climate; and that "Fire, or its elimination, is still a main problem in the applied total ecology by which western foresters and graziers must attempt to work out a durable modus vivendi for man in a non-static environment."

WEAVER, J. E. Stabilization of midwestern grassland. Ecological Monographs 20(3): 251-270, illus. July 1950.

"During the three years (1941-1943) following the seven years of devastating drought, the true prairie of the midwest had succeeded in repopulating most of the bared soil. But a series of changes in the vegetation seemed inevitable before predrought stability could be attained. These changes included an increase in the former dominants, suppression of drought dominants.....and an increase of drought-depleted forbs." "These phenomena have been studied during a period of five years very favorable for stabilization."

VEGETATION--WILDLIFE PLANTS

DURELL, JAMES S. Farm game habitat restoration in Kentucky. 11 pages, illus. Kentucky Division of Game and Fish, Leaflet No. 1. April 1950.

This leaflet deals mostly with the uses and cultivation of Lespedeza bicolor, Rosa multiflora , and Rosa setigera.

VEGETATION--WILDLIFE PLANTS--Continued

SPINNER, GEORGE P. and BISHOP, JAMES S. Chemical analysis of some wildlife foods in Connecticut. The Journal of Wildlife Management 14(2): 175-180. April 1950.

TALBERT, T. J. and SMITH, J. E., JR. The multiflora rose as a living hedge fence. 11 pages, illus. Missouri Agricultural Experiment Station, Bulletin 517. September 1948.
Uses, propagation, maintenance.

VEGETATION--AQUATIC
(See also BIRDS--WATERFOWL, Steenis)

ALLAN, PHILIP F. Ecological bases for land use planning in Gulf Coast marshlands. Journal of Soil and Water Conservation 5(2): 57-62, 85, illus. April 1950.
This is a simplified account of the succession of plant communities in Texas and Louisiana salt and fresh marshes. It discusses wildlife, livestock, and crop uses, and ways the land can be managed for these uses by water control, fire, and grazing. About half of a total of 5 million acres is best used for wildlife, two-fifths for livestock, very little for crops.

ANDERSON, JOHN M. Some aquatic vegetation changes following fish removal. The Journal of Wildlife Management 14(2): 206-209. April 1950.
Carp and other fish were killed in Middle Harbor, Sandusky Bay, Ohio, in the fall of 1948. During the following growing season Chara vulgaris spread over almost the entire bottom and sago pondweed and wildcelery also increased significantly. Myriophyllum exalbescens, Potamogeton crispus, and floating-leaved and emergent species remained about the same.

BEETLE, ALAN A. Bulrushes and their multiple uses. Economic Botany 4(2): 132-138, illus. April-June 1950.
The author reviews literature and his own observations with respect to the use of different species as weaving material for mats, baskets, and boats; for wildlife and streambank protection; seeds, roots, and shoots as food; and as ornamentals. In addition, one species is an important ricefield weed in California; others clog irrigation ditches.

DEXTER, RALPH W. Restoration of the Zostera faciation at Cape Ann, Massachusetts. Ecology 31(2): 286-288, illus. April 1950.
In September 1949 the author found that eelgrass was still sparse, except in Goose Cove. In Goose Cove 30 acres of healthy-appearing eelgrass was filled and surrounded by an abundance and large variety of animal life.

VEGETATION--AQUATIC--Continued

MILLER, WILLIAM R. and EGLER, FRANK E. Vegetation of the Wequetequock-Pawcatuck tidal-marshes, Connecticut. Ecological Monographs 20(2): 143-172, illus. April 1950.

The authors studied this eastern Connecticut marsh in 1946-1948, and report upon its vegetation and environment in clear and interesting detail. The vegetation is a mosaic of many communities, correlated with tidal changes; with variations in salinity, surface levels, soil acidity, and soil texture; and with mosquito ditching, mowing, and other conditions.

SURBER, EUGENE W. Aquatic weed control in ponds and small lakes. The thirty-eighth convention of the International Association of Game, Fish and Conservation Commissioners, September 15, 16 and 17, 1948. Pages 25-34. 1949?

"2,4-D in tributylphosphate and kerosene can be used effectively for the control of softstem bulrush, cattails, and needlerush at concentrations as low as 0.5 per cent of 2,4-D."

LANDS & SOILS

ROBINSON, GILBERT WOODING. Soils: their origin, constitution and classification; an introduction to pedology. 3rd edition, revised and enlarged. 573 pages, illus. Thomas Murby & Co., 40 Museum Street, London, W. C. 1. 1949.

WATER

SCHULTZ, VINCENT. A selected bibliography on farm ponds and closely related subjects. The Progressive Fish-Culturist 12(2): 97-104. April 1950.

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THE AMERICAN MIDLAND NATURALIST. University of Notre Dame, Notre Dame, Ind. $1.25 a copy.

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